Prevalence of Radiographic Abnormalities in Populations (USA)

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Author	Methods	Results	Comments
Stibolt TB; Vollmer WM; McCamant LE; Johnson LR; Bernstein RS; Buist AS. Pulmonary health risks among northwest loggers. J Occup Med 1991;33(6):699-704.	693 loggers in WA & OR; ILO 3 readers	0.14% (1/693) small interstitial opacities; 0.9% (6/693) w/ pleural thickening; none w/ pleural calcifications	68% exposed to Mt. St Helen Ash 35% current smokers; mean age about 36
Castellan RM, et al. Prevalence of radiographic appearance of pneumoconiosis in an unexposed blue collar population. Am Rev Respir Dis. 1985 May;131(5):684-6.	1422 blue collar workers from various sites in NC; felt to have minimal current/past exp. dust or resp. irritants. ILO; median B-readings	Interstitial 0.21% (3/1422) w/ profusion > 1/0 (0.31% (1/321) of those >45yrs age had > 0/1 profusion) Pleural 0.21% (3/1422) had pleural abnormalities (all unilateral & none calcified)	51% male, 47% current smokers; mean age 33.8 yrs; 321 >45yrs & 52% smoked.
Miller JA, et al. Asbestos plaques in a typical Veteran's hospital population. Am J Ind Med. 1996;30(6):726-9.	1212 consecutive patients at East Orange NJ VA hospital; 1 reader	2.3% (28/1212) had pleural changes c/w asbestos exposure. positives ages ranged from 50-98	5/28 + h/o asbestos exp. & 11/28 worked in high risk jobs
Rogan WJ, Gladen BC, et al. US Prevalence of occupational pleural thickening. J Epid. 1987; 126(5): 893-900.	Evaluated x-rays from NHANES 1971-75; 289 w/ pleural abnorms. ILO, 3 readers	extrapolated to US population estimates that 2.3% of males and 0.2% of females had **pleural** changes c/w probable occupational asbestos exposure	Authors assumed exposures were probably occupationally-related
Kilburn KH, et al. Asbestos disease in family contacts of shipyard workers. Am J Public Health. 1985;75(6):615-7.	2 different reference groups used (some of whom may have had asbestos exposure) positives were: 2 readings >= 1/0 or any combination of pleural abnorms. c/w asbestos exp. ILO, 3 readers	Long Beach CA census tract sample: 3.7% of 673 men and 0.6% of 674 women had CXR evidence of "asbestosis of lungs +/or pleura" Michigan population sample: 0.5% of 594 men and 0.0% of 583 women had CXR evidence of "asbestosis of lungs +/or pleura"	Long Beach: mean age 51.0; 60% men and 40% women were current or past smokers Michigan: mean age 42.4; 69% men and 50% women were current or past smokers

Ducatman AM, et al. Smoking and roentgenographic opacities in US Navy asbestos workers. Chest. 1990;97(4):810-3.	45,647 subjects in Navy Asbestos Medical Surveillance Program	> 1/0 profusion: 3.1% for smokers; 1.1% for nonsmokers increase with age: smokers 0.5% (25-34 yo) to 8.8% (55+ yo) nonsmokers 0.23% (25-34 yo) to 3.6% (55+ yo)	
Meyer JD, et al. Prevalence of small lung opacities in populations unexposed to dusts. A literature analysis. Chest. 1997;111(2):404-10.	Reviewed 8 published papers on 9 study populations (Kilburn=2 pops); Evaluated interstitial abnormalities only. Required all studies to have ILO readings, and at least 2 readers	North American studies had lower prev. than European studies: Prevalence Profusion >= 1/0: **North American** aggregated data: 1.6% (95% CI 0.6 to 2.6%) **Europe** aggregated data: 11.3% (95% CI 10.1 to 12.5%) Prev. North America: below 49yrs = 0.6%; 50 yrs and above=2.3%	Not all were truly unexposed
Anderson HA, et al. Household exposure to asbestos and risk of subsequent disease. In Dusts and Disease. Occupational and Environmental Exposures to Selected Fibrous and Particulate Dusts. 1979. Society for Occupational and Environmental Health.	326 Controls from NJ population matched for age and sex.	**All pleuropulmonary** abnormalities characteristic of asbestos exposure: **4.6%** of controls (15/326) **Total Pleural:** **1.8% (6/326)** Pleural thickening: 1.2 % (4/326) Calcifications: 0 Plaques: 0.6% (2/326) Irregular opacities: 3.4% (11/326)	

Prevalence of Radiographic Abnormalities in Populations (Other Countries)

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Rey F, et. al. Environmental pleural plaques in an asbestos exposed population in northeast Corsica. Eur Resp J. 1993, 6, 978-982.	83 subjects > 50yrs age w/ no occupational exp. from Murato (village with surface asbestos deposits), mean age 68, 37% smoked; compared to 108 subjects from Vezzani (non-exposed, control village). Mean age 66, 38% smoked, ILO; 2 readers (3rd used for ties)	41% incidence of bilateral pleural plaques in Murato 7.5% incidence of bilateral pleural plaques in Vezzani	airborne tremolite conc. in Murato 6-72 ng/m3 vs. < 1 ng/m3 in Vezzani chrysotile conc. was low indoors and out in both villages
Zitting AJ. Prevalence of radiographic small lung opacities and pleural abnormalities in a representative adult population sample. Chest. 1995;107(1):126-31.	8,000 subjects representative of the Finnish population aged 30 and over > 1/0 profusion associated with age, sex, and industrial occupation ILO, 2 readers	Men & Age Interstitial >=1/0: 2.9% (30-44 yrs), 13% (45-54), 24% (55-64), 37% (65-74), 41% (75-99) Men & Age Pleural (plaques or thickening, bilateral or unilateral): 2.9% (30-44 yrs), 13% (45-54), 20% (55-64), 28% (65-74), 20% (75-99) Men occupations other than industrial: Prof >= 1/0: 15%; parietal pleural abnorms: 13% Women occupations other than industrial: Prof >= 1/0: 10%; parietal pleural abnorms: 6%	data also available for women and were considerably lower
Zitting et al. Radiographic small lung opacities and pleural abnormalities as a consequence of asbestos exposure in an adult population. Scan J Work Environ Health 1995; 21:470-477.	3274 Finnish men and 3811 Finnish women aged 30 and over 13% of men and 0.8% of women were classified on basis of work history as probably exposed to asbestos	Interstitial: Among "unlikely exposed" men, 1/0 = 9.5%; >1/1= 3.8% Among "unlikely exposed" women, 1/0 = 8.3%; > 1/0 = 2.6% Pleural Disease: Men "unlikely exposed" Bilateral Abnorms: 4.6% Bi-or-unilateral Abnorms: 8.7% Women "unlikely exposed" Bilateral Abnorms: 1.5% Bi-or-unilateral Abnorms: 2.8%	Note: high prev. of bilateral pleural plaques vs. Swedish studies by Hillerdal -2.7% Norway study by Hilt -- 1.8% May be due to wide prod./ use of anthophyllite in Finland

Kennedy SM et al. Lung function and chest radiograph abnormalities among construction insulators. Am J Indust Med 1991 20:673-84	(Canadian study) Included two small comparison groups: 66 bus mechanics and 83 retired grain/civic workers	Mechanics: 5% interstitial and 5% pleural abnormalities Retired grain/civic workers: 5% interstitial and 14% pleural abnormalities	not clear that these groups were truly unexposed
Hillerdal et al. Pleural plaques in a health survey material: frequency, development, and exposure to asbestos. Scand J Respir Dis. 1978 59:257-263.		0.5% to 3.5% of males > 40 yo had pleural changes consistent with asbestos 79.4% of those with these changes had confirmed asbestos exposure.	
Hilt B, et al. Asbestos-related findings in chest radiographs of the male population of the county of Telemark, Norway--a cross-sectional study. Scand J Work Environ Health. 1986;12(6):567-73.	21,483 of 28,216 males >40 yo surveyed screened with 10 X10 cm films, then full-size if "+"; ILO not mentioned (so methods not comparable)	2.2% had pleural changes consistent with asbestos	

Prevalence of Radiographic Abnormalities Among Household Contacts

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Kilburn KH, et al. Asbestos disease in family contacts of shipyard workers. .Am J Public Health. 1985;75(6):615-7.	288 male shipyard workers; 71 female shipyard workers; Household contacts: 493 (274 wives; 79 sons; 140 daughters) from Los Angeles County Workers had to be at least 20 yrs after initial asbestos exposure positives were: 2 readings >= 1/0 or any combination of definite pleural abnorms. c/w asbestos exp. ILO, 3 readers	Abnorms workers: male 64% (185/288); female 21% (15/71) Household Contacts: **Total** Pleural and Int. abnormalities: 8.1% (40/493); **Pleural only**: (17/493) **3.5%** **Wives**: Overall 11% (31/274); Interstitial >= 1/0: 6.9% (19/274); Pleural: 4.4% (12/274) **Sons**: Overall 7.6% (6/79); Interstitial >= 1/0: 3.8% (3/79); Pleural: 3.8% (3/79) **Daughters**: Overall 2.1% (3/140); Interstitial >= 1/0: 0.7% (1/140); Pleural: 1.4% (2/140)	Wives: mean age 58 (+/- 9.5) Sons: mean age 29.5 (+/- 8.3) Daughters: mean age 32.3 (+/- 10.3)
Anderson HA, et al. Household exposure to asbestos and risk of subsequent disease. In Dusts and Disease. Occupational and Environmental Exposures to Selected Fibrous and Particulate Dusts. 1979. Society for Occupational and Environmental Health.	626 Household contacts of amosite asbestos workers (CXRs taken 1973-76) 326 Controls from NJ population matched for age and sex.	36% (225/626) of contacts had pleuropulmonary abnormalities characteristic of asbestos exp. vs. 4.6% of controls (15/326) Household Contacts vs Controls: **Total pleural: 19% (120/626) vs 1.8 %(6/326);** Pleural thickening 19% vs 1.2 % Calcifications: 8% vs 0 Plaques: 8% vs 0.6% Irregular opacities: 17% (105/626)vs 3.4%	